

## VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a Minor, Municipal permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260 et seq. The discharge results from the operation of a wastewater treatment facility that serves the town and surrounding commercial area. This permit action consists of updating Part I limitations, monitoring requirements and special conditions.

1. Facility Name: Town of Surry Wastewater Treatment Facility  
Facility Address: 11463 Rolfe Highway  
Surry, VA 23883

SIC Code: 4952

2. Permit No. VA0061646  
Existing Permit Expiration Date: October 12, 2016

3. Owner: Town of Surry  
Owner Contact Name: Will Gwaltney  
Title: Mayor, Town of Surry  
Telephone No: (757) 294-3021  
Address: P.O. Box 314  
Surry, VA 23883

4. Application Complete Date: 4/12/2016

Permit Drafted By: Adam Eller Date: 8/24/2016  
Piedmont Regional Office  
Reviewed By: Joseph Bryan Date: 09/14/2016  
Kyle Winter Date: 9/20/2016

Public Comment Period Dates: 10/##/2016 to 11/##/2016

5. Receiving Stream Name: Dark Swamp, Unnamed Tributary  
River Mile: 2CXBA000.27  
Basin: James River (Lower)  
Subbasin: NA  
Section: 1a  
Class: III  
Special Standards: None

7-Day, 10-Year Low Flow (7Q10): 0.0 MGD  
1-Day, 10-Year Low Flow (1Q10): 0.0 MGD  
30-Day, 5-Year Low Flow (30Q5): 0.0 MGD  
30-Day, 10-Year Low Flow (30Q10): 0.0 MGD  
Harmonic Mean Flow (HM): 0.0 MGD  
Tidal? NO  
On 303(d) list? NO

See **Attachment D** - Flow Frequency Memorandum

6. Operator License Requirements: The recommended attendance hours by a licensed operator and the minimum daily hours that the treatment works should be manned by operating staff are contained in the Sewage Collection and Treatment Regulations (9 VAC 25-790-300). A Class III licensed operator is required for the facility.

7. Reliability Class: Reliability is a measurement of the ability of a component or system to perform its designated function without failure or interruption of service. The reliability classification is based on the water quality and public health consequences of a component or system failure. The permittee is required to maintain Reliability Class II for the existing 0.060 MGD facility; however, the 0.099 MGD facility will be required to meet Reliability Class I.
8. Permit Characterization:  
☐ Private      ☐ Federal      ☐ State      ☒ POTW      ☐ PVOTW  
☐ Possible Interstate Effect      ☐ Interim Limits in Other Document
9. Description of the wastewater treatment system:

**Table 1:** Discharge Description

OUTFALL NUMBER	DISCHARGE SOURCE	TREATMENT	DESIGN FLOW
001	Residential (75%) and commercial (25%)	Bar screening, clarigester, rotating biological contact units, secondary clarification, microfiltration, ultraviolet disinfection, backup chlorination/dechlorination units, cascading aeration	0.060 MGD
		Microscreen auger, flow equalization, primary clarification, sequencing batch reactor (SBR), secondary clarification, microfiltration, ultraviolet disinfection, backup chlorination/dechlorination units, cascading aeration	0.099 MGD

The sewage treatment plant treats wastewater from approximately 500 connections, both residential and commercial, including offices and restaurants. Total population served is approximately 8,120. Connections are located within the Town of Surry limits and immediately outside of the Town boundary. Modifications to the treatment works will include design capacity expansion to 99,000 gallons per day (0.099 MGD), upgrading the existing wastewater treatment plant to include a new microscreen auger at the headworks, and the addition of a sequencing batch reactor (SBR) and tertiary filtration, which will be rated for 0.099 MGD. See **Attachment B** for existing and proposed facility diagrams and **Attachment L** for the CTC for the 0.099 MGD facility upgrades.

10. Sewage Sludge Use or Disposal: Solids are pumped to aerobic digester and then to drying beds. Dried solids are transported to the Atlantic Waverly Landfill (3474 Atlantic Avenue, Waverly, VA) in Sussex County for disposal. Approximately nine dry metric tons of sludge are disposed of by landfilling in a 365-day period. Sludge haul days are Monday through Friday between 7:00 a.m. and 3:00 p.m.
- See **Attachment C** - Sludge Haul Route
11. Discharge Location Description: This facility discharges to an unnamed tributary of Dark Swamp.
- Name of USGS topographic map: Surry Quadrangle (67A)
- See **Attachment A** - Topographic Map, Surry Quadrangle (67A)
12. Material Storage: Gaseous chlorine feed and dechlorination (sodium sulfite) tablets are stored undercover, inside the chlorine building.
- See **Attachment M** - Site Inspection Report

13. Ambient Water Quality Information: Ambient water quality data are not used because the receiving stream flows are zero at the theoretical low flows used to determine the need for water quality based effluent limitations. For this reason effluent is assumed to comprise 100% of the instream flow and effluent data were used in place of ambient stream data to evaluate the wasteload allocations and the need for effluent limitations.
14. 303(d) Listed Segments (TMDL): During the 2014 305(b)/303(d) Integrated Water Quality Assessment report, the unnamed tributary was assessed as a Category 2B water ("Waters are of concern to the state but no Water Quality Standard exists for a specific pollutant, or the water exceeds a state screening value or toxicity test."). The Fish Consumption Use is fully supporting with observed effects due to a VDH fish consumption advisory for kepone. The other Designated Uses were not assessed.

The Town of Surry WWTF was addressed in the Chesapeake Bay TMDL, which was approved by the EPA on December 29, 2010. The TMDL allocates loads for total nitrogen (TN), total phosphorus (TP), and total suspended solids (TSS) to protect the dissolved oxygen and submerged aquatic vegetation acreage criteria in the Chesapeake Bay and its tidal tributaries. Per DEQ's Phase I Watershed Implementation Plan (WIP) for the Chesapeake Bay TMDL (implemented on November 29, 2010), the non-significant TN and TP loads are considered aggregate and are not to be included in individual VPDES permits. The aggregated TN and TP loads are regulated by the Watershed Nutrient General Permit and all non-significant discharges with individual permits in existence as of July 1, 2005 are covered by rule under the permit (9 VAC 25-820-10 et seq.). The discharge from the existing 0.60 MGD facility is included in the aforementioned aggregated loads for non-significant wastewater dischargers in the Oligohaline James River Estuary (JMSOH); however, new or expanding non-significant dischargers that trigger the offset requirements established under the Code of Virginia are required to register and will be assigned individual allocations based on permitted design capacity or offsets upon issuance of a CTO for the expansion. The Town of Surry WWTF's application for the expansion in permitted design capacity to 0.099 MGD necessitated registration for coverage under the Watershed Nutrient General Permit. The VPDES Individual Permit was modified in 2015 to include concentration limitations for TN and TP for the 0.099 MGD facility; this facility also has TN and TP calendar year load limits included in the current Registration List under registration number VAN040172, enforceable under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia. The TSS allocations are considered aggregated and facilities with technology-based TSS limits are considered to be in conformance with the TMDL (this permit includes TSS limitations based on the 1988 and 2014 Stream Sanitation Analysis Memorandums and on Professional Judgment; these existing TSS limitations are more stringent than the technology-based standards for secondary treatment and are therefore in conformance with the TMDL). TSS limitations are included in this permit for both the existing 0.060 MGD treatment works, as well as the proposed 0.099 MGD treatment works. Per the WIP, provided the aggregated loads for all discharges is less than the aggregate TSS load in the WIP and the individual permits contain technology-based TSS limits as necessary, the individual VPDES permits will be considered to be consistent with the TMDL. The facility will neither cause nor contribute to violations of the Water Quality Standards (9 VAC 25-260 et seq., effective January 6, 2011).

15. Antidegradation Review & Comments: Tier 1   X   Tier 2        Tier 3

The State Water Control Board's Water Quality Standards includes an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with a Tier determination. The unnamed tributary to Dark Swamp is determined to be a Tier 1 waterbody due to its intermittent nature. Beneficial uses cannot be fully attained based on the intermittent nature of the stream. See **Attachment D** – Flow Frequency Memorandum.

16. Site Inspection: Date: 7/9/2015  
Performed by: Azra Bilalagic and Heather Deihls  
See **Attachment M** - Site Inspection Report
17. Effluent Screening & Limitation Development: Numeric permit limitation calculations utilize conservative low flow ambient conditions to represent circumstances in which the effluent has the greatest potential to impact the receiving stream. At the discharge point, the receiving stream is intermittent and dry during low flow conditions; therefore, mixing will not occur and effluent information is used to characterize the stream during low flow conditions (and in MSTRANTI). An effluent hardness (as CaCO<sub>3</sub>) value of 40.6 mg/L was obtained from effluent data submitted with the permit application (EPA Form 2A). The maximum average temperature value (23.7°C) from Form 2A was assumed to be a reasonable approximation of the 90<sup>th</sup> percentile stream/effluent temperature. The 90<sup>th</sup> and 10<sup>th</sup> percentile maximum pH values were calculated using DMR data. MSTRANTI was used to determine maximum wasteload allocations (WLA) for each water quality parameter that will maintain the Water Quality Standards (WQS) in the receiving stream.

Water Quality Criteria Monitoring data submitted with the 2016 permit application was used to screen the effluent for pollutants of concern. Pollutants that tested below DEQ prescribed quantification levels (QLs) were considered absent for the purpose of this evaluation and no further analysis was required. Pollutants above their respective DEQ QLs, found in measureable concentrations, and those with an Aquatic Water Quality Standard were evaluated for a reasonable potential to violate the standard, using Stats.exe and the appropriate WLA calculated by MSTRANTI.

See **Attachment G** for facility DMR data and effluent data submitted with the permit application.

See **Attachment H** for the MSTRANTI data source report, and printouts of the MSTRANTI and Stats.exe results.

**Table 2:** Basis for 0.060 MGD Effluent Limitations

PARAMETER	BASIS FOR LIMIT	DISCHARGE LIMITS			
		MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM
pH	4, 5	NA	NA	6.0 s.u.	9.0 s.u.
cBOD <sub>5</sub>	1, 3	10 mg/L	15 mg/L	NA	NA
Total Suspended Solids (TSS)	1, 3	10 mg/L	15 mg/L	NA	NA
Total Kjeldahl Nitrogen (TKN)	1, 3	3.0 mg/L	4.5 mg/L	NA	NA
Ammonia (as N)	2	1.72 mg/L	1.72 mg/L	NA	NA
Dissolved Oxygen (DO)	4	NA	NA	5.0 mg/l	NA
TRC (Only applicable if chlorine is used for disinfection; see Part I.B of permit)	2	0.0074 mg/L	0.0084 mg/L	NA	NA
Total Recoverable Copper	2	3.8 µg/L	3.8 µg/L	NA	NA
Total Recoverable Zinc	2	37 µg/L	37 µg/L	NA	NA
<i>E.coli</i> (N/100mL) (Geometric Mean)	4	126	NA	NA	NA
(157) TRC contact tank*	3	NA	NA	1.0 mg/l	NA
(213) TRC contact tank*	3	NA	NA	0.60 mg/l	NA

NA = Not Applicable

NL = No Limit

\* Applicable when chlorine is used for disinfection (see Part I.B of permit)

1. Stream Sanitation Memorandum (4/20/1988; see **Attachment F**)
2. Water Quality Based Effluent Limits (WQBELs)
3. Professional Judgment
4. Virginia Water Quality Standards (9 VAC 25-260)
5. Federal Effluent Guidelines for Secondary Treatment (40 CFR 133.102)

Additional Information - Effluent Limitations Evaluation for the 0.060 MGD Facility:

TRC:

Chlorine is a toxic pollutant purposefully introduced into the wastewater. Consequently, a reasonable potential analysis is not necessary to establish the need for a limitation. Per GM00-2011, a chlorine limitation was forced using a datum of 20,000 µg/L in STATS.exe. The 2011 permit included TRC limitations of 0.0080 mg/L (Monthly Average) and 0.0098 mg/L (Weekly Average); however, the 2016 effluent limitations analysis produced more stringent TRC limitations of 0.0074 mg/L (Monthly Average) and 0.0084 mg/L (Weekly Average). Per GM00-2011, compliance schedules should not be afforded if the facility is already capable of meeting the limitation. Between January 2013 and May 2014, all of the facility's final effluent TRC data reported on monthly DMRs were below the QL; therefore, no compliance schedule is deemed necessary and these more stringent TRC limits will be effective upon reissuance.

Ammonia and TKN:

Facilities discharging treated domestic waste are known to discharge ammonia at an expected concentration of 9.0 mg/L. Per GM00-2011, this datum was used to force an ammonia limitation in STATS.exe. The 2.34 mg/L limit calculated during the 2016 limitation analysis is less stringent than the current 1.72 mg/L limitation; therefore, the existing 1.72 mg/L ammonia limit will be carried forward. The TKN limitation of 3.0 mg/L is not protective of ammonia toxicity; therefore, both ammonia and TKN limitations apply.

cBOD<sub>5</sub>, TKN and TSS:

These limitations are based on the 1988 Stream Sanitation Memorandum by D.X. Ren.

Total Recoverable Copper:

The 2016 reasonable potential analysis (using the dissolved copper data reported on the permit application) did not indicate the need for a copper limit; however, the existing total recoverable copper limitation of 3.8 µg/L will be carried forward to avoid backsliding concerns.

Total Recoverable Zinc:

The 2016 reasonable potential analysis (using the dissolved zinc data reported on the permit application) did not indicate the need for a zinc limit; however, the existing total recoverable zinc limitation of 37 µg/L will be carried forward to avoid backsliding concerns.

pH:

Required by 40 CFR 133.102 Federal Effluent Guidelines for Secondary Treatment and 9 VAC 25-260-50 of the VA Water Quality Standards outlines numerical criteria for pH in Class III waters between 6.0 S.U. and 9.0 S.U.

Dissolved Oxygen (DO):

Based on the numeric criteria (5.0 mg/L minimum) for dissolved oxygen (per 9 VAC 25-260-50) for Class III waters.

**Table 3:** Basis for 0.099 MGD Effluent Limitations

PARAMETER	BASIS FOR LIMIT	DISCHARGE LIMITS			
		MONTHLY AVERAGE	WEEKLY AVERAGE	MINIMUM	MAXIMUM
pH	4, 5	NA	NA	6.0 s.u.	9.0 s.u.
cBOD <sub>5</sub>	3, 6	10 mg/L	15 mg/L	NA	NA
Total Suspended Solids (TSS)	1, 3	10 mg/L	15 mg/L	NA	NA
Total Kjeldahl Nitrogen (TKN)	3, 6	3.0 mg/L	4.5 mg/L	NA	NA
Ammonia (as N)	2	1.72 mg/L	1.72 mg/L	NA	NA
Dissolved Oxygen (DO)	6	NA	NA	5.0 mg/L	NA
Total Recoverable Copper	2	3.8 µg/L	3.8 µg/L	NA	NA
Total Recoverable Zinc	2	37 µg/L	37 µg/L	NA	NA
<i>E.coli</i> (N/100mL) (Geometric Mean)	4	126	NA	NA	NA
Total Nitrogen, Calendar Year Average	7	8.0 mg/L	NA	NA	NA
Total Phosphorous, Calendar Year Average	7	1.0 mg/L	NA	NA	NA
Total Nitrogen, Year-to-Date (mg/L)	7	NL	NA	NA	NA
Total Phosphorous, Year-to-Date (mg/L)	7	NL	NA	NA	NA
TRC*	2	0.0074 mg/L	0.0084 mg/L	NA	NA
(157) TRC contact tank*	3	NA	NA	1.0 mg/L	NA
(213) TRC contact tank*	3	NA	NA	0.60 mg/L	NA

NA = Not Applicable

NL = No Limit

\* Applicable when chlorine is used for disinfection (see Part I.B of permit)

1. Stream Sanitation Memorandum (April 20, 1988; see **Attachment F**)
2. Water Quality Based Effluent Limits (WQBELs)
3. Professional Judgment
4. Virginia Water Quality Standards (9 VAC 25-260)
5. Federal Effluent Guidelines for Secondary Treatment (40 CFR 133.102)
6. Stream Sanitation Memorandum (July 25, 2014; see **Attachment E**)
7. Strategy for Chesapeake Bay Watershed (9 VAC 25-40-70)

Additional Information - Effluent Limitations Evaluation for the 0.099 MGD Facility:

pH:

9 VAC 25-260-50 of the VA Water Quality Standards outlines numerical criteria for pH in Class III waters between 6.0 S.U. and 9.0 S.U. 40 CFR 133.102 Secondary Treatment Regulation also states that: "The effluent values for pH shall be maintained within the limits of 6.0 to 9.0 unless the publicly owned treatment works demonstrates that: (1) Inorganic chemicals are not added to the waste stream as part of the treatment process; and (2) contributions from industrial sources do not cause the pH of the effluent to be less than 6.0 or greater than 9.0."

cBOD<sub>5</sub>, DO and TKN:

The receiving stream cannot be accurately modeled using Regional Model 4.1; therefore, effluent limits from A.J. Anthony's March 9, 1987 memorandum "Advisory Notification of Effluent Limits for Swamp and Marsh Waters" were recommended in the 2014 Stream Sanitation Analysis Memorandum (see **Attachment E**). The Memorandum suggested the following effluent limitations for the 0.099 MGD facility: cBOD<sub>5</sub> = 10 mg/L; TKN = 3.0 mg/L; and, a minimum DO limit of 5.0 mg/L to protect the free-flowing portion of the stream. The aforementioned limitations are the same as the cBOD<sub>5</sub>, DO and TKN limitations for the existing 0.060 MGD facility.

TSS:

The 0.060 MGD facility's current TSS limitations of 10 mg/L (Monthly Average) and 15 mg/L (Weekly Average) are based on the 1988 Stream Sanitation Memorandum; these TSS effluent limitations are considered protective of the receiving stream and have been applied to the 0.099 MGD facility. Loading limitations have been adjusted to account for additional flow (see **Attachment I** for TSS loading calculations).

Ammonia:

Facilities discharging treated domestic waste are known to discharge ammonia at an expected concentration of 9.00 mg/L. Per GM00-2011, this datum was used to force an ammonia limitation for the 0.099 MGD facility. The resulting limitation calculated for the 0.099 MGD facility is less stringent than the current permit limit of 1.72 mg/L (Monthly & Weekly Average); therefore, the current ammonia limitation for the 0.060 MGD facility will be applied to the 0.099 MGD facility (see **Attachment H** for MSTRANTI WLAs and STATS.exe analysis of ammonia). The TKN limitation of 3.0 mg/L is not protective of ammonia toxicity; therefore, both ammonia and TKN limitations apply.

Total Recoverable Copper:

The 0.060 MGD facility's total recoverable copper limitations (3.8 µg/L Weekly Average; 3.8 µg/L Monthly Average) have been applied to the 0.099 MGD facility. These water quality-based limitations (WQBELs) were established in the 2006 permit and carried forward in the 2011 permit (see **Attachment H** for the 2006 limitation development documents, which includes MSTRANTI and Stats.exe evaluations). The proposed flow expansion to 0.099 MGD does not affect water quality-based concentration limits when the receiving stream is comprised solely of effluent and no new effluent data is available for the 0.099 MGD facility as it has not been built. The 2016 reasonable potential analysis for the existing treatment works (using the dissolved copper data reported on the permit application) did not indicate the need for a copper limit; however, the existing total recoverable copper limitation of 3.8 µg/L will be carried forward to avoid backsliding concerns.

Total Recoverable Zinc:

The 0.060 MGD facility's total recoverable zinc limitations (37 µg/L Weekly Average; 37 µg/L Monthly Average) have been applied to the 0.099 MGD facility. These WQBELs were first established in the 2006 permit and will continue to be carried forward in the 2016 permit (see **Attachment H**). The proposed flow expansion to 0.099 MGD does not affect water quality-based concentration limits when the receiving stream is comprised solely of effluent and no new effluent data is available for the 0.099 MGD facility as it has not been built. The 2016 reasonable potential analysis for the existing treatment works (using the dissolved zinc data reported on the permit application) did not indicate the need for a zinc limit; however, the existing total recoverable zinc limitation of 37 µg/L will be carried forward to avoid backsliding concerns.

E.coli:

The Town of Surry WWTF was granted a CTO for an ultraviolet light (UV) disinfection system upgrade on April 22, 2014 (see **Attachment K**). The UV system will serve as the primary disinfection method for the treatment works; however, chlorine disinfection will remain available as a backup disinfection method. Per Part I.B.2 of the 2011 permit and in accordance with GM14-2003, the existing 0.060 MGD facility shall monitor *E.coli* twice per week by grab sample between 10 a.m. and 4 p.m. when bacteria is controlled by UV disinfection. The proposed 0.099 MGD facility shall also monitor *E.coli* twice per week by grab sample between 10 a.m. and 4 p.m. when bacteria is controlled by UV disinfection per GM14-2003.

TRC:

Chlorine is a toxic pollutant that will be purposefully introduced into the wastewater when chlorine disinfection is used. Consequently, a reasonable potential analysis is not necessary to establish the need for a limitation. Per GM00-2011, a chlorine limitation was forced using a datum of 20,000 µg/L. The resulting limitation calculated for the 0.099 MGD facility using Stats.exe was more stringent than the TRC limitations previously established; therefore, the reissued permit will include TRC limitations of 0.0074

mg/L (Monthly Average) and 0.0084 mg/L (Weekly Average). See **Attachment H** for MSTRANTI WLAs and STATS.exe analysis of TRC.

Nutrients (TN and TP):

In 2015, the permit was modified to include an expanded effluent flow tier for a proposed facility expansion to 0.099 MGD. Expanding facilities discharging to the Chesapeake Bay are addressed by § 62.1-44.19:14.C.5 of the Code of Virginia as follows: *“...any owner or operator of a facility authorized by a Virginia Pollutant Discharge Elimination System permit to discharge 40,000 gallons or more per day, or an equivalent load, directly into tidal or nontidal waters (shall) secure general permit coverage by filing a registration statement with the Department at the time he makes application with the Department for a new discharge or expansion that is subject to an offset or technology-based requirement in § 62.1-44.19:15...”*

Nutrient loadings to the Chesapeake Bay Watershed are limited under the General Permit for Total Nitrogen and Total Phosphorous Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9 VAC 25-820), which became effective on January 1, 2012 and was amended on November 21, 2012. The Town of Surry WWTF has obtained general permit coverage under Registration No. VAN040172. According to 9 VAC 25-820-30.A, the general permit shall control in lieu of conflicting or duplicative mass loading effluent limitations, monitoring or reporting requirements for total nitrogen (TN) and total phosphorus (TP) contained in individual VPDES permits for facilities covered by the general permit. Based on the referenced regulation, nutrient loading limitations and associated monitoring were not included in the individual permit. Compliance with the Nutrient Loading Allocations assigned to the Town of Surry WWTF in 9 VAC 25-820-70 is required by January 1<sup>st</sup> following the issuance of a CTO for the 0.099 MGD upgrades. In order to achieve compliance with the load allocations the Town of Surry WWTF's expansion will include biological nutrient removal (BNR) technology (See **Attachment J** and **Attachment L**).

In accordance with 9 VAC 25-40-70, the board shall include technology-based effluent concentration limitations in the individual permit for any facility that has installed technology for the control of nitrogen and phosphorus whether by new construction, expansion, or upgrade. Such limitations shall be based upon the technology installed by the facility and shall be expressed as annual average concentrations. The overall modifications to the treatment works, as described in the Town of Surry WWTF's Preliminary Engineering Report (PER) approved on January 24, 2014, and the CTC for facility upgrades issued November 19, 2015, shall be designed to meet annual average total nitrogen effluent concentration limitation of 8.0 mg/L and annual average total phosphorus effluent concentration limitation of 1.0 mg/L; these limitations are appropriate for the facility's proposed BNR technology. Per GM07-2008, the TN and TP concentration limitations for the 0.099 MGD facility will become effective January 1<sup>st</sup> following the year in which the CTO for the 0.099 MGD facility upgrade is issued.

Human Health Evaluation:

Separate human health (HH) standards apply to waters that are designated as “Public Water Supplies (PWS)” and “all other surface waters.” The receiving stream is not designated as a PWS; consequently, the HH (PWS) standards are not applicable to this discharge. However, each parameter found in the effluent at a measureable concentration or a concentration above the Agency QL is listed in Table 2, below, and compared with both of the applicable Human Health (PWS and All Other Surface Waters) standards.



**Table 4:** Human Health Evaluation Summary

Parameter	Human Health Standard (PWS)	Human Health Standard (All Other Surface Waters)	Effluent Concentration	Potential for Human Health Concern
Chlorides (µg/L)	250,000	No WQS Criteria	42.5	NO
Copper (µg/L)	1,300	No WQS Criteria	1.92	NO
Lead (µg/L)	15	No WQS Criteria	0.26	NO
Nickel (µg/L)	610	4,600	1.27	NO
Zinc (µg/L)	7,400	26,000	12.4	NO

As indicated in Table 3, the parameters found in measurable concentrations in the effluent do not present a reasonable potential to cause or contribute to a water quality standard violation or a human health concern. No further human health evaluation of these parameters is necessary at this time.

18. Basis for Sludge Use & Disposal Requirements: Not applicable, as this facility does not land apply sludge. See Item 10 for further details on sludge use and disposal.
19. Antibacksliding Statement: All limitations established in this permit reissuance are at least as stringent as the limitations in the previous permit.
20. Compliance Schedules: None
21. Special Conditions:

**Part I.B.1: Additional Chlorine Limitations and Monitoring Requirements**

**Rationale:** Required by Sewage Collection and Treatment Regulations, 9 VAC 25-790 and Water Quality Standards 9 VAC 25-260-170, Bacteria; other recreational waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.

**Part I.C.1: 95% Capacity Reopener**

**Rationale:** Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 4 for all POTW and PVOTW permits.

**Part I.C.2: Indirect Dischargers**

**Rationale** Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 1 and B 2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

**Part I.C.3: CTC, CTO Requirement**

**Rationale:** Required by Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790. 9 VAC 25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.

**Part I.C.4: O&M Manual Requirement**

**Rationale:** Required by Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190 E.

**Part I.C.5: Licensed Operator Requirement**

**Rationale:** The VPDES Permit Regulation, 9 VAC 25-31-200 C and the Code of Virginia § 54.1-2300 et seq., Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Regulations (18 VAC 160-20-10 et seq.), require licensure of operators.

**Part I.C.6: Reliability Class**

**Rationale:** Required by Sewage Collection and Treatment Regulations, 9 VAC 25-790 for all municipal facilities.

**Part I.C.7: Sludge Use and Disposal**

**Rationale:** VPDES Permit Regulation, 9 VAC 25-31-100 P; 220 B 2; and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on sludge use and disposal practices and to meet specified standards for sludge use and disposal.

**Part I.C.8: Sludge Reopener**

**Rationale:** Required by VPDES Permit Regulation, 9 VAC 25-31-220 C for all permits issued to treatment works treating domestic sewage.

**Part I.C.9: Total Maximum Daily Load (TMDL) and Nutrient Reopener**

**Rationale:** Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The re-opener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.

9 VAC 25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.

9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

**Part I.C.10: Compliance Reporting**

**Rationale:** Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J 4 and 220 I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

The metals (total recoverable copper and total recoverable zinc) quantification levels (QLs) reflect the site specific target values (SSTV) calculated in 2006 MSTRANTI (see **Attachment H**). The SSTVs are based on a percentage of the wasteload allocation (the lesser of 40% of the acute wasteload allocation and 60% of the chronic wasteload allocation) calculated with respect to the effluent and receiving stream conditions. The metals QLs are based on the 2006 SSTVs because the limitations are brought forward from the 2006 permit. The QLs for the other parameters are DEQ prescribed.

**Part I.C.11: Closure Plan**

**Rationale:** This condition establishes the requirement to submit a closure plan for the treatment works if the treatment facility is being replaced or is expected to close. This is necessary to ensure treatment works are properly closed so that the risk of untreated waste water discharge, spills, leaks and exposure to raw materials is eliminated and water quality maintained. Section 62.1-44.21 requires every owner to furnish when requested plans, specification, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purpose of the State Water Control Law.

**Part I.C.12: Materials Handling/Storage**

**Rationale:** 9 VAC 25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia § 62.1-44.16 and 62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

**Part I.C.13: Water Quality Criteria Reopener**

**Rationale:** VPDES Permit Regulation, 9 VAC 25-31-220 D requires effluent limitations to be established which will contribute to the attainment or maintenance of water quality criteria.

**Part I.C.14: Nutrient Reporting Calculations**

**Rationale:** §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9 VAC 25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, this special condition is intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

**Part I.C.15: Suspension of Concentration Limits for E3/E4 Facilities**

**Rationale:** 9 VAC 25-40-70 B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.

**Part I.C.16: Offset Requirement**

**Rationale:** The Virginia General Assembly, in its 2005 session, enacted a new Article 4.02 (Chesapeake Bay Watershed Nutrient Credit Exchange Program) to the Code of Virginia to address nutrient loads to the Bay. Section 62.1-44.19:15 sets forth the requirements for new and expanded dischargers, including the requirement that non-point load reductions acquired for the purpose of offsetting nutrient discharges be enforced through the individual VPDES permit.

**Part I.C.17: Water Quality Criteria Monitoring**

**Rationale:** State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. To ensure that water quality standards are maintained, the permittee is required to analyze the facility's effluent for the substances noted.

**Part I.D: Pretreatment Program**

**Rationale:** VPDES Permit Regulation, 9 VAC 25-31-730 through 900, and 40 CFR Part 403 require certain existing and new sources of pollution to meet specified regulation.

**Part II, Conditions Applicable to All Permits**

**Rationale:** VPDES Permit Regulation, 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

21. Changes to the Permit:

**Table 5:**

Changes to the Permit Cover Page	
Change:	Reason for Change:
Permit "Effective Date" and "Expiration Date" updated	To reflect new permit term and to be in conformance with PRO protocol for the expiration date ending on the last day of the month, just shy of a five year permit term.

Job title of the DEQ signatory updated	To reflect the job title of the DEQ staff who signed the permit.
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Changes to Part I.A.1 – Effluent Limitations and Monitoring Requirements (0.060 MGD Facility)						
Outfall No.:	Parameter Changed:	Monitoring Requirement Changed:		Effluent Limits Changed:		Reason for Change:
		From:	To:	From:	To:	
001	Dissolved Sulfide	“1 per 6 Months”	(Delete d)	“NA”	(Deleted)	Professional Judgment; removed monitoring requirement for this parameter based on dissolved sulfide data received during the permit term; all sample results were non-detectable.
Changes to Part I.A.1 Footnotes:		Change:				Reason for Change:
From	To					
I.A.1(d)	--	Deleted footnote “d”				No longer needed definition of “1 per 6 Months” due to the removal of dissolved sulfide parameter, which was the only parameter under Part I.A with this monitoring frequency requirement.
I.A.1.e	I.A.1.d	Footnote “e” changed to “d”				Numerical change, due to deletion of footnote “d.”
I.A.1.f	I.A.1.e	Footnote “f” changed to “e”				Numerical change, due to deletion of footnote “d.”
Other Changes to Part I.A.1:						Reason for Change:
Added existing footnote “b” to DO and pH parameters under “Effluent Characteristics” column.						To clarify that these limitations are expressed in two significant figures.
Changes to Part I.A.5 – Effluent Limitations and Monitoring Requirements (0.099 MGD Facility)						
Outfall No.:	Parameter Changed:	Monitoring Requirement Changed:		Effluent Limitation Changed:		Reason for Change:

		From:	To:	From:	To:		
001	Dissolved Sulfide	“1 per 6 Months”	(Deleted)	“NA”	(Deleted)	Professional Judgment; removed monitoring requirement for this parameter based on dissolved sulfide data received during the permit term; all sample results were non-detectable.	
<b>Changes to Part I.A.5 Footnotes:</b>		<b>Change:</b>				<b>Reason for Change:</b>	
From	To						
I.A.5.d	--	Deleted footnote “d”				No longer needed definition of “1 per 6 Months” due to the removal of dissolved sulfide parameter, which was the only parameter under Part I.A with this monitoring frequency requirement.	
I.A.5.e	I.A.5.d	Footnote “e” changed to “d”				Numerical change, due to deletion of footnote “d.”	
I.A.5.f	I.A.5.e	Footnote “f” changed to “e”				Numerical change, due to deletion of footnote “d.”	
I.A.5.g	I.A.5.f	Footnote “g” changed to “f”				Numerical change, due to deletion of footnote “d.”	
I.A.5.h	I.A.5.g	Footnote “h” changed to “g”				Numerical change, due to deletion of footnote “d.”	
I.A.5.i	I.A.5.h	Footnote “i” changed to “h”				Numerical change, due to deletion of footnote “d.”	
<b>Other Changes to Part I.A.5:</b>						<b>Reason for Change:</b>	
Added existing footnote “b” to DO and pH parameters under “Effluent Characteristics” column.						To clarify that these limitations are expressed in two significant figures.	
<b>Changes to Part I.B – Additional Chlorine Limitations and Monitoring Requirements</b>							
<b>Parameter</b>	<b>Monthly Average</b>		<b>Weekly Average</b>		<b>Frequency</b>	<b>Sample Type</b>	<b>Reason for Change:</b>
	From:	To:	From:	To:			

TRC (DMR #005)	0.0080 mg/L	0.0074 mg/L	0.0098 mg/L	0.0084 mg/L	No Change	No Change	2016 STATS.exe evaluation of TRC indicated that these lower limitations are required to be protective of water quality (apply if chlorine disinfection is used).
Changes to Part I.C – Other Requirements or Special Conditions							
Special Condition Changed:				Change:		Reason for Change:	
I.C.10.a (Compliance Reporting)				Deleted dissolved sulfide parameter and associated QL		Removal of dissolved sulfide monitoring requirement from Part I.A.	
Changes to Part I.D - Pretreatment Program							
No changes were made to Part I.D.							
Changes to Part II – Conditions Applicable to All VPDES Permits							
No changes were made to Part II.							

22. Variances/Alternate Limits or Conditions: None
23. Regulation of Users (9 VAC 25-31-280 B 9): Not applicable, this facility is a POTW.
24. Public Notice Information required by 9 VAC 25-31-280 B:

Comment period: 10/##/2016 to 11/##/2016  
Date of first publishing: 10/##/2016  
Date of second publishing: 10/##/2016  
Publishing Newspaper: *Sussex-Surry Dispatch*

All pertinent information is on file and may be inspected or copied by contacting Adam Eller at:

Virginia Department of Environmental Quality (DEQ)  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, Virginia 23060-6296

Telephone Number (804) 527-5046  
Email: [Adam.Eller@deq.virginia.gov](mailto:Adam.Eller@deq.virginia.gov)

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit.

Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may review the draft permit and application at the DEQ Piedmont Regional Office by appointment.

Public Notice Comments: **TBD**

25. Additional Comments:

- a. Previous Board Action: The State Water Control Board entered into a Consent Order with the Town of Surry on 6/25/2010, for violations of TKN, cBOD, copper, and chlorine effluent limitations exceedances as well as reporting violations (see **Attachment O**). An amendment to the Consent Order was issued on 10/3/2013 requiring that the Town upgrade the wastewater treatment plant to achieve consistent compliance with all permit effluent limits (see **Attachment P**). A Certificate to Construct (CTC) was issued for the 0.099 MGD facility upgrades on 11/19/2015 (see **Attachment L**). Monthly updates on the progress of the wastewater treatment plant upgrade are required (per Appendix A Schedule of Compliance (#6) of the Amendment to Order by Consent) to be submitted on the 15<sup>th</sup> of each month until a Certificate to Operate (CTO) for the upgrades is issued.

The Order shall continue until Surry petitions the Director to terminate the Order after it has completed all of the requirements and the termination is approved or the Director or State Water Control Board terminate the order upon 30 days written notice to Surry.

b. Staff comments:

- (1) Planning conformance statement: The discharge is in conformance with the existing planning documents for the area.
- (2) Controversial Permit Assessment: This permit is not expected to be controversial.
- (3) Fees: Permit maintenance fees are up to date, last paid on 9/4/2015.
- (4) e-DMR Participation: The facility participates in the e-DMR program as of 9/29/2011.
- (5) Virginia Environmental Excellence Program (VEEP) Participation: The facility is not enrolled in the VEEP program.
- (6) Effluent Monitoring Reductions: This facility does not qualify for a monitoring reduction due to NOV's issued during the past three years (NOV's were issued on 10/16/2014 and 10/29/2015).
- (7) General Permit Registration: This facility has registered under the VPDES Chesapeake Watershed General Permit for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia. The facility's registration number is VAN040172.
- (8) A CTO for UV disinfection upgrades was issued 4/22/2014. A CTC for expansion upgrades to the wastewater treatment plant was issued on 11/19/2015.
- (9) Financial Assurance: Financial assurance does not apply to this facility because it is a publicly owned treatment works.
- (10) Permit Expiration Date: The permit expiration date was shortened to occur at the end of the month prior to the 5-year anniversary of the permit. This is done to begin each future permit cycle at the start of a monitoring period.

c. Other Agency Comments

- (1) EPA comments: EPA has categorically waived the right to comment on draft permits for minor, municipal facilities that do not include limits to comply with a TMDL other than those for bacteria TMDLs.

- (2) VDH comments: In a letter dated 6/1/2016 and received 6/6/2016, VDH-ODW stated that there are no raw water intakes downstream of the discharge point. VDH had no objections to the permit reissuance. See **Attachment N**.
- (3) Currently, DCR, DGIF, and USFWS provide DEQ with an annual list of facilities that each agency would like to review/coordinate upon for threatened and endangered species (T&E) during permit reissuances. This facility was not requested for T&E coordination by DCR, DGIF, or USFWS; therefore, T&E coordination with these agencies was not deemed necessary for the 2016 permit reissuance.

- d. Owner Comments: **TBD**
- e. Public Notice comments: **TBD**
- f. Local Government Notification of Public Notice: Local government officials were notified of the public comment period on **TBD**. In accordance with the Code of Virginia §62.1-44.15:01, the following individuals received the notification: **[county administrator/town manager, ranking elected official, planning district commission representative]**

26. Attachments:

- Attachment A: Facility Location (maps and aerial photo)
- Attachment B: Plant Flow Diagrams
- Attachment C: Sludge Haul Route
- Attachment D: Flow Frequency Memorandum (5/19/2016)
- Attachment E: Stream Sanitation Analysis Memorandum (7/25/2014)
- Attachment F: Stream Sanitation Analysis Memorandum (4/20/1988)
- Attachment G: Effluent Data (including DMRs and effluent data from 2016 permit application)
- Attachment H: Effluent Limitations Analysis (including MSTRANTI data source report, MSTRANTI, and Stats.exe results)
- Attachment I: Loading Calculations
- Attachment J: Nutrient Offset Plan
- Attachment K: CTO for UV System Upgrades (issued 4/22/2014)
- Attachment L: CTC for 0.099 MGD Facility Upgrades (issued 11/19/2015)
- Attachment M: Site Inspection Report
- Attachment N: VDH Coordination Response
- Attachment O: Order by Consent (effective 6/25/2010)
- Attachment P: Amendment to Order by Consent (effective 10/3/2013)